

STUDIES ON THE AUSTRALIAN CICINDELIDAE IV: A REVIEW OF THE GENUS *NICKERLEA* (COLEOPTERA)¹

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ABSTRACT: The genus *Nickerlea* W. Horn is reviewed. A key to the two included species [*N. sloanei* (Lea) and *N. distipsideroides* W. Horn] is presented. Both of the species are redescribed and illustrated. The genus is shown to be a member of the subtribe Iresina Rivalier. New data is presented that suggests *N. sloanei* inhabits open woodlands with adult activity during the late summer or early fall.

The genus *Nickerlea* was erected by Walther Horn in 1899 to contain the new species *N. distipsideroides* W. Horn. The description was based upon a single specimen collected by Odewahn in northern Australia. Lea (1897) described *Cicindela sloanei* from three specimens collected at Mullewa, Western Australia (W.A.). The species was later moved into *Nickerlea* Sloane (1906). Since Sloane's (1906) work, the genus has been mentioned in various papers dealing with other cicindelid genera or in checklists: Horn (1909, 1910 & 1926); Lawton (1972); Freitag (1979); and Sumlin (1980).

Rivalier (1971), in his revision of the tribe Cicindelini, was unable to directly place *Nickerlea* into his new subtribe Iresina due to a lack of material. Using Rivalier's characters of maxillary palpi, thoracic sterna and labral chaetotaxy, *Nickerlea* fits into Iresina between the genera *Rhysopleura* Sloane and *Megalomma* Westwood.

The genus was given a comprehensive treatment by McCairns (1978), but the work is part of an unpublished doctoral thesis and is not readily available to students of the Cicindelidae.

Until now, this rare genus has only been known from the four specimens mentioned above; no data relevant to adult activity or accurate accounts of species' habitats have ever been published.

The present paper is the result of a direct comparison of the type specimens of the two species, a review of the literature and the acquisition of a freshly collected series of *N. sloanei* with collecting data.

Genus *Nickerlea* W. Horn

Horn, 1899: 135, 1909: 444; 1910: 183; 1926: 107. Sloane, 1906: 334. Rivalier, 1971: 139. McCairns, 1978: 226.

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Description: Member of the subfamily Cicindelinae, tribe Cicindelini and subtribe Iresina; eyes large and prominent; clypeus with two sensory setae; frons with two pairs of supraorbital setae; orbital plates of frons not separated from rest of frons by a sulcus; labrum nearly as long as wide, six-setose, five- or seven-dentate; galea two-segmented, lacinia with a digitus; second segment of maxillary palp very explanate; metepisternum without deep horseshoe-shaped impression; ventral surfaces without setae (excepting sensory setae); disc of pronotum only slightly arched; procoxae with sensory setae.

Type Species: *N. distipsideroides* W. Horn (by monotypy).

Key to Species

1. Ventral surfaces light-testaceous or cupreous in color; maculation consisting of a marginal line running from the humeral area to near the elytral apex
 *N. sloanei* (Lea)
1. Ventral surfaces black with blue or green reflections; maculation consisting of three distinct spots per elytron *N. distipsideroides* W.H.

Nickerlea sloanei (Lea)

(Fig. 1)

Cicindela sloanei Lea, 1897: 584. Sloane, 1906: 335.

Nickerlea sloanei (Lea), Sloane, 1906: 335, Horn, 1909: 444; 1910: 184; 1926: 107, Lawton, 1972: 15. McCairns, 1978: 228. Freitag, 1979: 5. Sumlin, 1980: 22.

Description: **Head:** Labrum of both sexes testaceous with dark brown border; labrum of holotype male dark brown with a testaceous median stripe; male labrum seven-dentate with six setae, anterior pair marginal; female labrum five-dentate with six setae; antennal segments one to four testaceous in color, remaining segments dark brown; scape with a single sensory seta; head glabrous except for sensory setae.

Thorax: Entirely glabrous; disc of pronotum finely to coarsely rugose, median sulcus shallow; female with shallow coupling sulcus.

Abdomen: Entirely glabrous except for sensory setae.

Elytra: Male, nearly parallel-sided, rounded in apical fourth to apex; female, slightly wider in basal third to apical third, then angling steeply from apical fourth to near apex, then nearly straight to apex; both sexes with distinct humeri, apical spines and microserrations; elytral surfaces punctate-granulate with a subsutural row of foveae running from near base to near apex; maculation consisting of an unbroken marginal vitta running from the humerus to near the elytral apex.

Legs: Femora and tibiae testaceous, tibiae with dark brown apices; protarsi dark brown; meso- and metatarsi testaceous with dark brown apices.

Color: Head, thorax and elytra dark metallic cupreous with slight green reflections; metasternum with testaceous disc; majority of abdomen testaceous; the type, unlike the Badja specimens, has totally testaceous sterna and pleurae.

Size: Male, 7.8 to 8.5 mm in length (not including labrum), 2.5 to 2.8 mm in width, n=4; female, 9.3 mm in length (not including labrum), 2.8 mm in width, n=1.

Holotype: Male, Mullewa, W.A. (South Australian Museum, Adelaide, South Australia).

Distribution: Western Australia: Mullewa (type); Cue? (Horn, 1926); 15 km NW Badja, 28° 31' S., 116° 40' E., 17&18-III-1982, T.F. Houston and B. Hanish (3 ♂, 1 ♀).

Discussion: In Lea's (1897) original description of *N. sloanei* he

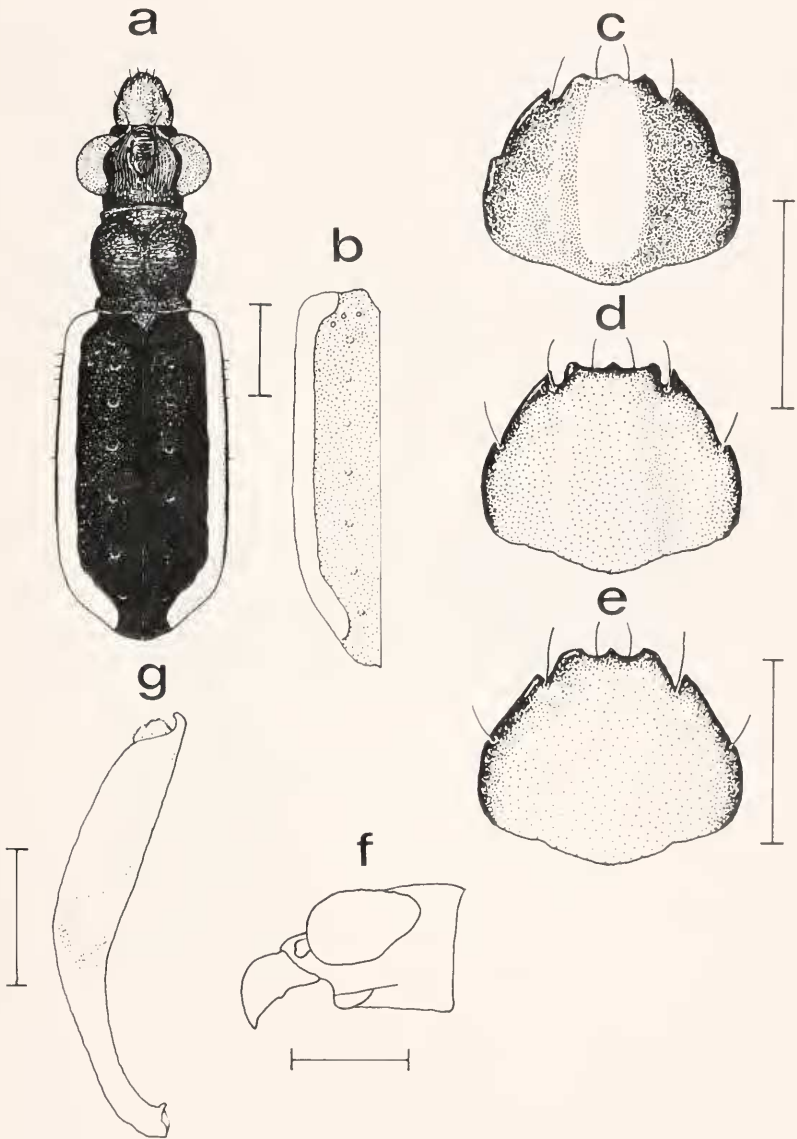


Fig. 1a-1g. *Nickerlea sloanei* (Lea). 1a. Dorsal habitus of male, 1b. Dorsal view of left elytron of female. 1c. Dorsal view of labrum of holotype male. 1d. Dorsal view of labrum of Badja male. 1e. Dorsal view of labrum of Badja female. 1f. Left-lateral view of male head (sans mandibles, palpi & antennae). 1g. Dorsal view of aedeagus. Scale lines indicate 1 mm.

states "Three specimens (one of which is now in the possession of Mr. G. Masters) were obtained in the bed of a dry creek." This became "sandy bed of a dry creek" in Sloane (1906) and all papers dealing with the species' habitat thereafter. Sumlin (1980) pointed out that there is no sandy creek bed at Mullewa and speculated that *N. sloanei* is a halophilic tiger beetle. This is not borne out by the Badja series. Terry Houston (Western Australian Museum, Perth, W.A., *in litt.*) states: "The habitat . . . was not saline. I picked them up on a bush track in heavily grazed mulga [*Acacia aneura*] woodland (possibly near puddles of rainwater, but I'm unsure of this). Nearby was a weak watercourse in and around which was much fresh growth. The area had received a heavy fall of rain some weeks previously and a lot of water lay in some low areas about half a kilometer away. There were no salinas [salt flats] in the region to my knowledge." A temporal activity period is established with the Badja series that indicates presence of adults during late summer/early fall.

The location at Cue, W.A. stated in Horn (1926) as a part of the species' range is not supported by specimens.

Sloane (1906) moved *C. sloanei* into *Nickerlea* without seeing the type of the genus. *N. sloanei* males possess a peculiar shaped labrum; the center is vaulted outward longitudinally which gives the labrum the appearance, in lateral aspect (Fig. 1f), of a parrot's beak. Also, the labral dentition of the *N. sloanei* female is not the same as the *N. distipsideroides* female which may indicate that the two species, although closely related, are not congeneric. The eventual discovery of the male of *N. distipsideroides* should clarify this situation.

Nickerlea distipsideroides W. Horn

(Fig. 2)

Nickerlea distipsideroides W. Horn, 1899: 136 (original misspelling). Sloane, 1906: 334. McCairns, 1978: 231.

Nickerlea distipsideroides W. Horn, Horn, 1909: 444 (emendation); 1910: 184; 1926: 107. Sumlin, 1980: 22.

Description: **Head:** Labrum of female unicolorous dark, red-brown, seven-dentate (the anterior-most teeth being quite feeble), with six setae (posterior two pairs submarginal); head glabrous except for supraorbital sensory setae; antennae missing.

Thorax: Entire thorax glabrous with rounded sides; pronotum finely rugose with very faint medial sulcus; coupling sulcus shallow.

Abdomen: Entirely missing; replaced with a large blob of glue.

Elytra: Nearly parallel-sided although slightly wider in median third then rounded from apical fourth to apex; female with distinct humerus and apical spine; microserrations present, but very small; elytral surface strongly punctate basally becoming punctate-granulate in apical third to apex; subsutural row of foveae present; maculation consisting of three marginal spots representing the humeral and apical lunules and the marginal line.

Legs: Femora and tibiae testaceous; pro- and mesotarsi dark brown; metatarsi

testaceous.

Color: Head and thorax black with slight reflections of blue and green; elytra blackish-brown basally fading to lighter brown apically.

Size: Female, 9.9 mm in length (excluding labrum), 2.9 mm in width. Male of species unknown.

Holotype: Female. Austratia (sic) bor. Odewahn (Institut für Pflanzenforschung, Eberswalde-Finow, DDR).

Distribution: Unknown.

Discussion: The only known specimen of this species is the holotype and it is incomplete. The abdomen is missing and probably was so when described by Horn (1899) as he labelled it a female with a question mark. The protarsi of the specimen are not expanded and it possesses a coupling sulcus which, short of aberration, means it is a female.

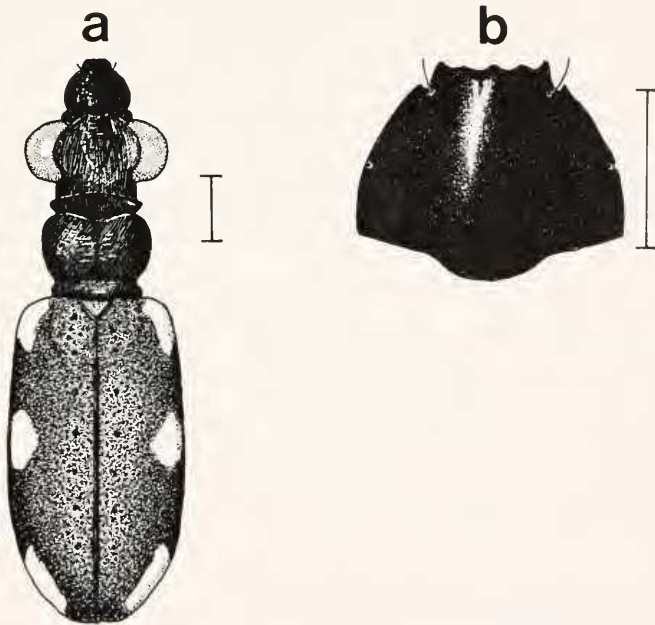


Fig. 2a-2b. *Nickerlea distipsideroides* W. Horn. 2a. Dorsal habitus of holotype female. 2b. Dorsal view of labrum of holotype. Scale lines indicate 1 mm.

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